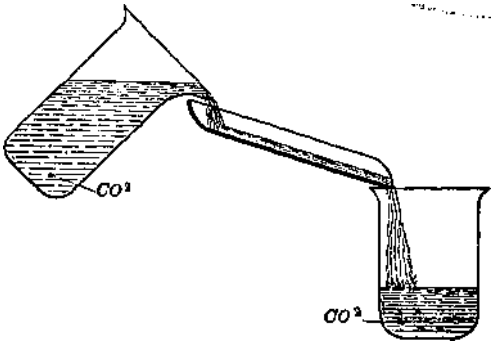
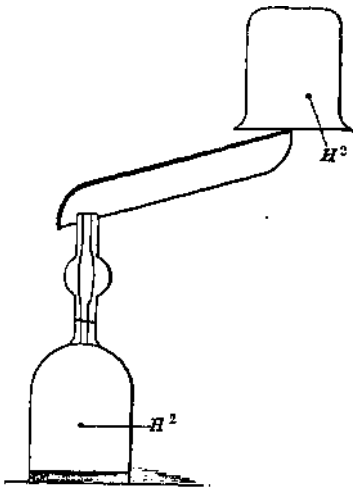


than the air, it is found necessary to confine them %g><m-; the top and the sides.

This may be more clearly comprehended by means of the following laboratory experiment :

It is possible to pour a gas from one container to another by employing a sloping trough to guide its flow. This may be done with carbon - dioxide gas, which is heavier than air, and also with hydrogen, which is lighter than air. When the carbon dioxide is being poured, the stream of gas must be confined below and upon its sides (Fig. 5). The hydrogen, on the other hand, must be confined upon the top and the sides (Fig. 6). There is evidently nothing which confines the current of carbon dioxide upon the top and the stream of hydrogen on the bottom. These experiments require care, but are easy to make if the surrounding air is absolutely still and free from currents. & The gases may be poured equally well

FIG 5



whether there is a fourth wall or not.

FIG. G. These experiments lead to the following conclusions:

Streams of incandescent gas need be confined only upon the top and sides, and, in effect, all reverberatory furnaces confine the stream of hot gases in this manner, at the top (the roof) and

[1]A condition which **is** neglected in the above experiment, is the tendency of all gases to form homogeneous mixtures by diffusion. In both experiments there will be a slight mixing with the air, as a result of this tendency.